

# Science Instrument Concept Study Final Report Format

## General Instructions

- a) Due date: 1 August 1999
- b) Electronic submission only:
  - Submission address: instructions forthcoming
  - Adobe Portable Document Format (pdf)
  - Page layout for US letter (8.5 x 11 inch) paper
  - 1-inch margins, 12 point font, single spaced
- c) Submit two versions: 1 proprietary (clearly marked as such) and 1 non-proprietary.

Report Format	Pages (approximate)
1.0 Science	
1.1 Executive summary	2
1.2 Science capability	10
2.0 Engineering	
2.1 Design Concept	10
2.2 Technology Readiness	5
2.3 Development schedule and Integration & Test (I&T) plan	4
3.0 Cost Estimate	
3.1 Cost summary	1
3.2 Details	no limit
4.0 References	2

## Notes:

- 0) The final report should encompass all aspects of the concept study. These reports are not proposals. However, we ask that they conform to the above format for ease of committee review. A committee of astronomers including members of the NGST ASWG will review the non-proprietary version of the report. This review will focus on issues of science capability. A committee of appropriate technical specialists will review the proprietary version. This latter review will focus on issues of technical and cost feasibility. We ask that you organize the content of your report into the above general categories to facilitate this review process.
- 1) US concept study PIs should note that the exact content of this final report is specified in NRA 98-GSFC-1 Attachment A Section 2 (hereafter SoW). It should be noted that "RfP" versions of this NRA are not operative documents and should be disregarded. This final report constitutes deliverable 3.5 of SoW Section 3. Interim reporting has been implemented as poster presentations at AAS meetings 193 and 194. It is anticipated that the final oral report will be implemented as invited talks at the NGST Science and Technology Exposition (Woods Hole, MA) during September 1999.
- 2) Report section 2.2 and 2.3 should speak to the following NGST schedule milestones:
  - Science instrument teams selected: April 2001
  - Instrument CDR: June 2003
  - Flight qualified instruments delivered to GSFC: June 2005
- 3) Report section 2.3 should indicate what NASA ground support equipment is desired and when it enters the instrument I&T flow.
- 4) Report section 3 should assume the following basis of estimate (BoE):
  - Typical instrument teams consist of academic and aerospace contractor partnerships. The academic partner will lead the instrument development and will carry out a guaranteed time observing (GTO) program that is defined before launch. The aerospace component will work under contract to deliver a flight-qualified instrument to GSFC on the above schedule. Both components of this team will provide on site support for ISIM integration at GSFC and observatory level integration at a TBD US location. Labor costs should include pre-launch science support for GTO development (WBS 2 below). Full cost accounting labor rates should be used for US government laboratory involvement. Costs should include all phases of

development, launch, and on orbit check out. Instrument I&T costs should be distributed over the WBS. Phase E costs should not be included. Costing should assume that the following ISIM services are provided to the instrument teams:

- supporting structure
- instrument optical bench cooling to 25 K and 6 K
- detector front-end electronics package
- flight data system & instrument control processor

- 5) The above BoE is a hypothetical scenario designed to place cost estimates on a common footing for ease of comparison to previous Project estimates of instrument costs. If this BoE is awkward or incompatible with implementation of the conceived instrument development, then an alternate BoE may be specified.
- 6) Report section 3 should use the following Work Breakdown Structure (WBS). Labor categories and fully burdened rates should be specified. Cost should be delineated by phase: instrument phase A and C begin during April 2001 and 2003 respectively. The nominal launch date is December 2007. Costs should be presented in units of real year USD.

#### Concept Study WBS

- 1.0 Management
- 2.0 Science program development
- 3.0 Systems Engineering
- 4.0 SR&QA
- 5.0 Structure
- 6.0 Optics
- 7.0 Electronics
- 8.0 Thermal Engineering
- 9.0 Software
- 10.0 Detectors